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that the extended growth of the segment is in accordance with that of the rachis. This would serve to make plainer the distinction between the frond and the leaf, in which the form of the skeleton is determined by the growth of the parenchyma, which demands support.

Since writing the above, I have found among my specimens of *Pellaea Wrightiana*, a number of specimens of that very rare fern (in the United States), *P. ternifolia*, Link. Upon a careful examination of this fern there seems to be no doubt of the suggestion of Prof. Eaton, that it and *P. Wrightiana* belong to the same species. I shall, therefore, distribute it among my sets, as far as the specimens will go, as *P. ternifolia*, Link, and *P. Wrightiana*, Hooker, as var. *Wrightiana* of the former species.—HENRY H. RUSBY.

Some Additions to the North American Flora, by Dr. G. Engelmann.—*DICENTRA OCHROLEUCA*, n. sp. Stem erect, 2-4 feet high, leafy, leaves glaucous, large (lower ones a foot or more long), 3-pinnate, ultimate divisions deeply cleft into lanceolate-linear lobes; flowers paniced on very short pedicels, about 15 lines long, ochroleucous; membranaceous sepals suborbicular; exterior petals slightly saccate at base, upwards narrower, somewhat concave below the acute tip, and scarcely spreading; inner petals widened above into a deep purple circular tip, crested with two very broad flat and elongated appendages; stamens subulate scarcely cohering.

In valleys of the Santa Monica Mountains near Los Angeles, Cal., where it grows with the rather rare *Ceanothus spinosus*, the root-stock of which, named red-wood, furnishes the principal fire-wood there.—Together with *D. chrysantha* this handsome species constitutes the subgenus *Chrysocapnos*, in which the crest, single and inflated in the true *Dicentrae*, is formed of two distinct lamellae, flat and large in our species, short and curly in *D. chrysantha*. This latter is a coarser plant with much smaller golden-yellow flowers (6-9 lines long) and deeply concave, spreading outer petals.

TSUGA CAROLINIANA, n. sp. A small tree of the southern Alleghany Mountains with larger (6-8 lines long, $\frac{3}{4}$ -1 line wide), darker leaves than the common Hemlock spruce, retuse or often notched at tip, without stomata above, beneath with two pale bands, each with 7 or 8 series of stomata; strengthening cells under the epidermis on keel, midrib and edges; cones 12-14 lines long, scales oblong, much longer than wide, in 8-13 order, spreading at right angles after maturity, broad bracts slightly and obtusely cuspidate; seeds (2 lines long) with numerous (15-20) small oil vesicles on the under side, twice shorter than wing.

Mountains of North and South Carolina, on dry slopes and ridges.—Smaller, stouter branched than *T. Canadensis*, from which it is always readily distinguished by its larger, darker, glossier, more retuse leaves and by its larger cones with wide spreading scales. It was first noticed in the mountains of South Carolina by Prof. L. R. Gibbes of Charleston in 1850, who sent specimens to Prof. A. Gray in 1856 and in an accompanying letter suggested for it the name of

Pinus laxa; he obtained it from both Carolinas; Prof. Gray himself had already collected it in 1842 on Bluff Mountain, N. C., in foliage only; and last year Mr. A. H. Curtiss again met with it "on Pinnacle Mountain, N. C., a long ridge commencing about 8 miles south of Hendersonville, probably 3-4000 feet high, where in groups of only few trees it occupies slopes near the summit, and even cliffs, while *T. Canadensis* abounds in the ravines of the same region; both species are cultivated side by side at the entrance of Mr. Middleton's place at Flat Rock, 3 miles from Hendersonville, where their branches interlock and their differences are strikingly exhibited." I have not seen any young shoots of this species and therefore can not say whether their leaves are spinulose-denticulate as they are in young plants of the two other North American species. These may be distinguished thus:

T. Canadensis: leaves of the mature tree smaller (4-7 lines long), obtuse with 5 or 6 series of stomata on each side of the keel below, destitute of any strengthening cells; scales of cone in $\frac{5}{8}$ order, orbicular oblong with broad truncate bracts; wing very broad at base, tapering, scarcely longer than the seed which shows 2-3 large oil vesicles.

T. Mertensiana has larger leaves, with two bands each of 7-9 series of stomata; strengthening cells few on the edges and very sparse on upper and lower side of leaf; cones 6-12 lines long (not $1\frac{1}{2}$ inches as sometimes stated), scales oblong, mostly a little narrowed in the middle, bracts slightly cuspidate; seeds smaller, with few oil vesicles, wings twice as long as the body of the seed.

YUCCA MACROCARPA, n. sp. Trunk several (1-4) feet high; leaves spreading, sharp pointed, concave, with entire margins; panicle subsessile with lanceolate, white, fleshy bracts; flowers not seen; fruits cylindrical not marked by any ridges, obtuse, pale yellowish, pulpy (4-6 inches long, 6-7 in circumference); seeds thick and large (5-6 lines wide, $1-1\frac{1}{4}$ lines thick), rugose-runcinated.

In ravines of the Santa Rita Mountains south of Tucson, Arizona. — Evidently closely allied to *Y. baccata*, Torr., which is found from Southern Colorado all along through Arizona to Southern California; distinguished from it by the absence of fibres on the leaf-edges (I have rarely seen on one or the other this fibre detached from the edge, just as we find it sometimes in *Yucca gloriosa*, and *Y. canaliculata*, which ordinarily have entire edges), by the smaller, narrow bracts, and the obtuse, not rostrate fruit. The fruit is of the color of a yellow apple, rather pulpy, of a pleasant sweetish acidulous taste.

JUNCUS RUGULOSUS, n. sp. Pale green, transversely rugose and rough, stems 2-4 feet high from a stout running rhizoma, very weak, leafy; leaves septate; panicle lax, decomposed, 6-8 inches long and wide; heads with hyaline bracts, 3-5-8-flowered; sepals linear-lanceolate very acute, nearly equal, the outer carinate 1-nerved, the inner 3-nerved; stamens 6, much shorter than sepals, linear anthers shorter than filaments; capsule exceeding the calyx, lanceolate, acute, 3-angled, 1-celled; seeds acute at both ends but not caudate, reticulate.

In a running streamlet at the foot of the San Bernardino Mountains, discovered by W. G. Wright, and seen there by me also in November.—With *J. asper* the only species of our flora with rough epidermis. It may be compared with loose panicked forms of *J. acuminatus* var. *debilis*, but is readily distinguished by its roughness and its 6 stamens, and then, no forms of *J. acuminatus* occur west of the great plains.

MONANTHOCHLOE LITTORALIS, Engelm., heretofore only known from coasts of the Gulf of Mexico, I found on the Bay of San Diego, Cal., where it grows with that curious *Batis maritima*, already noticed there 30 years ago by Dr. Parry.

Is *Chenopodium viride*, L., a good species?—It may not be advisable for amateurs in natural science to be tinkering with the limits of species, yet I cannot forbear, after more than a score of years of acquaintance, adding my honest convictions on the relation of the above named species with *Chenopodium album*, L. It was in my boyhood days, that, with hoe in hand I was called upon to wage a war of extermination on the "milfoil," or "mildew," as it is generally called by our farmers; and this, as I remember it now, was always the broad leaved form (*C. album*), and was to be found in almost every field and fence-row. During the last ten years the implement has been the botanical text-book, and I have had the pleasure of seeing the old enemy gradually growing less common. But its place is now being taken by a hardier, earlier-blooming and narrower-leaved form (*C. viride*, L.), which does not show any disposition, so far as I can discern, to become intermingled with its predecessor and weaker brother. Our modern authorities* appear to regard *C. viride*, L. as a deep green, narrower-leaved and more mealy form of *C. album*, L.; while by some of the earlier authorities this order is reversed and *C. album*, L. is regarded as possibly not a good species, and that it may simply be a variety of *C. viride*, L. The main distinctions given are, that in the former, *especially when full grown*, the stem and leaves are a paler green, that the flowers are more dense on the branches, and that it blooms in July and August. Both are said to be extensively used as potherbs when in the young and tender stage.†

The following are the differences I have observed, and are my reasons for considering them distinct species:

- (a) *C. viride* blooms from four to six weeks earlier.
- (b) Its general growth is more erect, the branches assuming more nearly the vertical position.
- (c) The whole plant is a deeper green.
- (d) The leaves are narrower, varying from ovate-lance late to

*Gray, Manual of the Botany of Northern U. S., Fifth Edition; Watson, Revision of N. A. Chenopodiaceae; Wood, Class-Book of Botany.

†See a German encyclopedic work of botany by Dr. G. W. F. Pancer, published about one hundred years since, in fifteen volumes, with copper-plates, and based on Houttuyn's translation and notes of the thirteenth edition of *Carolus A. Linne's System of Plants*. This is a monumental work of its period, and gives a scientific and popular description of all the plants then known.